

**CAFO WPDES Compliance Report (1-28-13)**

Inspection date: January 11, 2013

Inspection type: EPA initiated inspection

Operation Name: [REDACTED] Calf Ranch (WPDES permit applicant)

Operation Address: [REDACTED]

On-Site Representatives: [REDACTED] - Owner

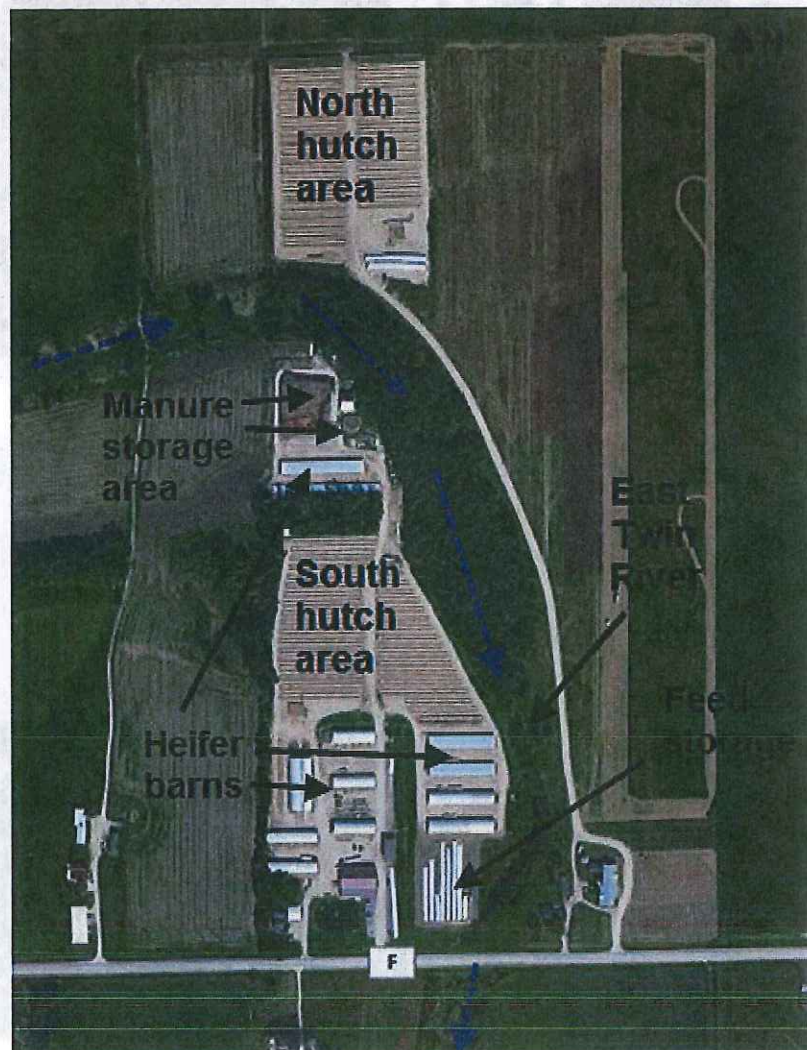
DNR Staff: Casey Jones, Agricultural Runoff Management Specialist



On January 10, 2013 Cheryl Burdett (US EPA – Chicago) contacted Jones to inform that EPA was coming up to inspect and possibly take samples at [REDACTED] Calf Ranch on January 11, 2013. Jones made arrangements to meet EPA team in Luxemburg at 8:30 AM on January 11, 2013. Jay Schiefelbein, DNR Agricultural Specialist, prepared water sampling equipment and accompanied Jones to meet EPA and attend site inspection.

Site overview shown right.

Calf raising facility consists of north and south hutch areas, heifer barn housing, solid manure storage stacking area, slurrystore liquid storage and silage bag feed storage area.





### Feed Storage Area

Feed storage area consists of silage bags on asphalt surface. Bags are also stored in between heifer barns. Overall, area is managed well, but some improvements can be made with these requirements:

- Clean water shall be diverted away from the area where the feed is stored.
- Spilled feed shall be removed and all working faces shall be re-covered to minimize potential spillage and exposure to precipitation.



Left: Air photo showing proximity of feed storage area to large grass swale (west and south) and river (east).



Above: Photo of ponded water on pad. Water on pad was fairly clear.



Left: Looking south at one open silage bag and some residual spillage in main storage area.

Below: Looking north at bag stored on west side of grass swale.



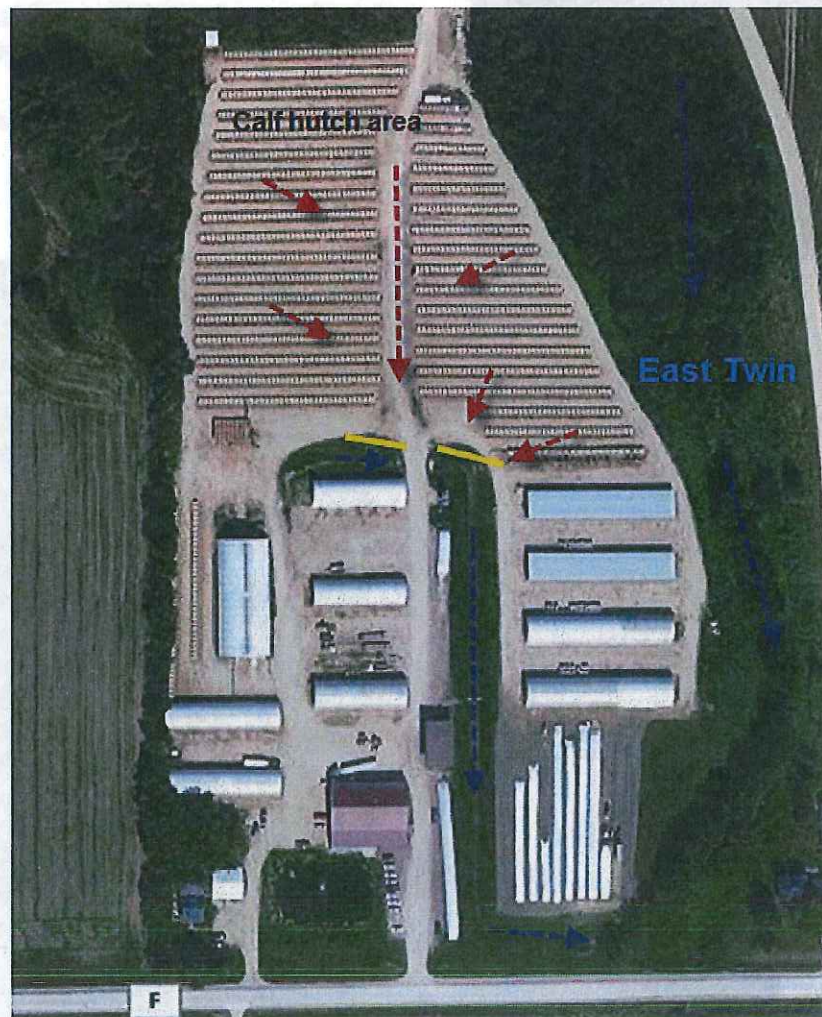




View of plowed snow pile adjacent to drainage swale. Straw and feed is commingled with snow—better management practices are necessary to reduce potential delivery of feed wastes to surface water.

### **Southern calf hutch area**

Calf hutch area drainage currently flows south into large drainage swale that discharges to road ditch connected to river. Some bale and silt fence dams (locations shown in yellow in air photo) are up to capture any straw or manure solids; however, the rest of polluted runoff is allowed to reach ditch discharging to East Twin River.







Above: Looking west at calf hutches;  
drainage path runs down center of two  
hutch areas.

Left: View of temporary dam in place to  
slow flow and catch any solids before runoff  
drainage enters grass swale area.

Below: Close view of brown runoff water  
from hutches.







Looking north at large grass swale area that carries farm production site drainage south to road ditch. According to landowner, perforated tile line runs parallel within grass swale to assist with drainage; tile outlet discharges directly into river.



Left: Looking south at end of grass swale that discharges into road ditch. Runoff water was brown and turbid (sample 001 was taken before road ditch).

Below: Looking southeast where road ditch discharges into river (sample 002 taken here).





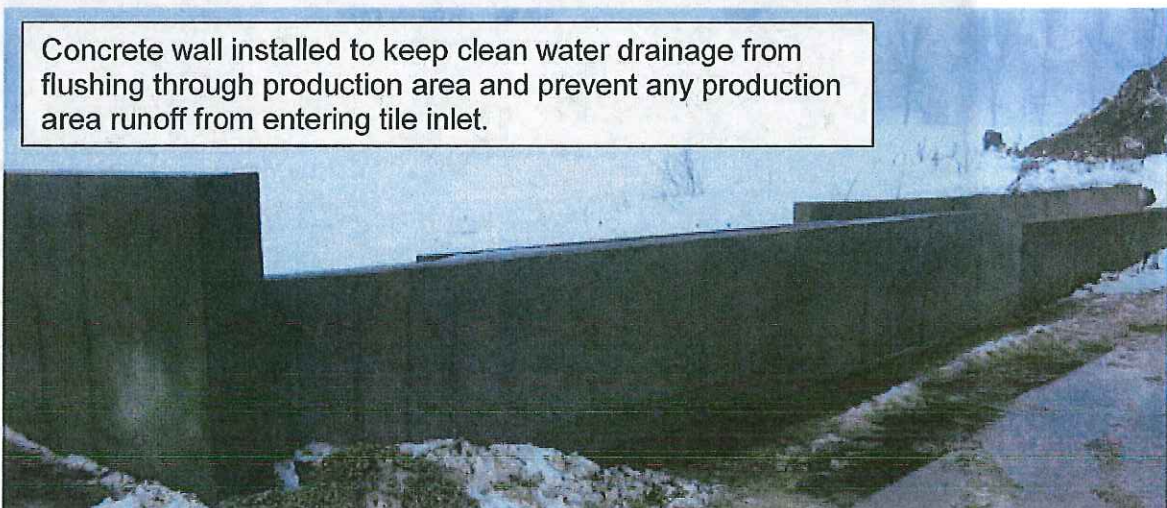
### **Manure storage area**

Manure storage area is located on west side of river just north of the south calf hutch pad area. There is a large solid manure stacking pad with leachate and runoff collection directed into a manhole; the runoff is pumped into adjacent slurrystore storage.

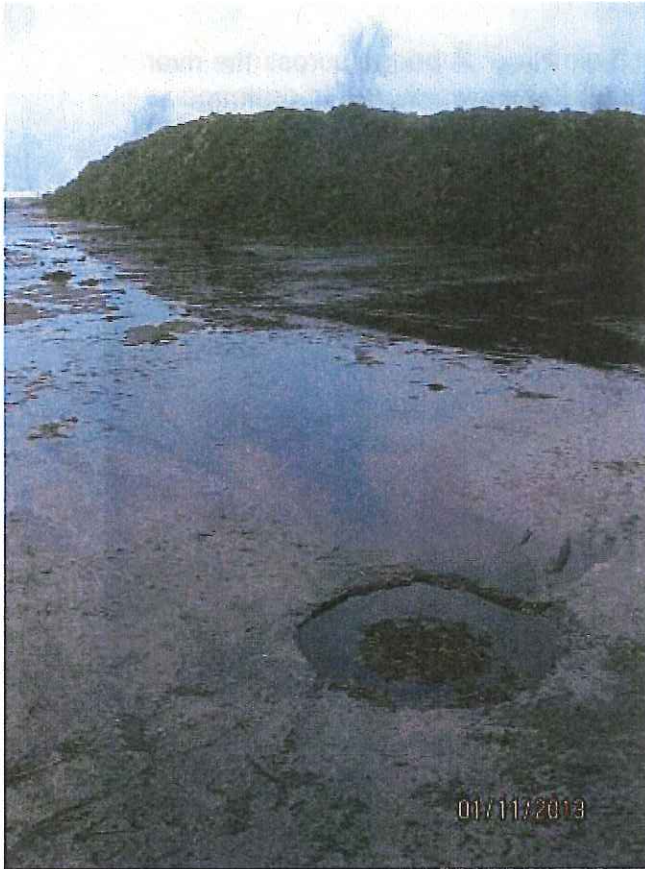
A concrete barrier wall (location shown in yellow in air photo) has been installed to prevent runoff from entering tile inlet and prevent field drainage runoff from flushing across livestock and manure storage areas.



Concrete wall installed to keep clean water drainage from flushing through production area and prevent any production area runoff from entering tile inlet.







Views of solid manure stacking storage area. All manure was stored on designed pad. Runoff water was draining into manhole shown in photo left. Contents are then pumped into slurrystore liquid storage.



Slurrystore liquid storage.



### Northern calf hutch area

Northern calf hutch area is located north of East Twin River. A bridge across the river connects the production areas. Drainage flows south then toward west in drainage swale. Temporary ditch checks with straw bales and silt fence are in place shown in yellow in overview.



Looking north at calf hutch area.





Looking west at drainage swale that receives runoff from calf hutch area. Temporary measures are in place to keep straw and manure solids from discharging.



Looking east at upstream location of East Twin River. Drainage arrow showing where runoff from northern calf area flows into river (sample 003 was taken upstream of discharge path).

### **Summary**

Temporary control measures in place are not sufficient to stop polluted runoff from entering the East Twin River. Increased controls are necessary as soon as possible. Installation of permanent controls reviewed and approved by the Department for the northern calf hutch pad feedlot runoff storage and covered housing to replace southern calf hutch area should eliminate discharge problems.

Also see report dated 1-11-13 that shows water sample locations and lab results dated 1-23-13.







January 23, 2013

Jay Schiefelbein  
WDNR - Green Bay  
2984 Shawano Ave  
Green Bay, WI 54313

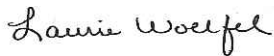
RE: Project: [REDACTED]  
Pace Project No.: 4072801

Dear Jay Schiefelbein:

Enclosed are the analytical results for sample(s) received by the laboratory on January 11, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Laurie Woelfel

laurie.woelfel@pacelabs.com  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc..



## CERTIFICATIONS

Project:

Pace Project No.: 4072801

---

### Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 11888

North Dakota Certification #: R-150

South Carolina Certification #: 83006001

US Dept of Agriculture #: S-76505

Wisconsin Certification #: 405132750

---

## REPORT OF LABORATORY ANALYSIS

Page 2 of 18

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc..



## SAMPLE SUMMARY

Project: [REDACTED]  
Pace Project No.: 4072801

Lab ID	Sample ID	Matrix	Date Collected	Date Received
4072801001	001 DISCHARGE	Water	01/11/13 10:02	01/11/13 11:11
4072801002	002 CONVEYANCE	Water	01/11/13 10:08	01/11/13 11:11
4072801003	003 UPSTREAM	Water	01/11/13 10:30	01/11/13 11:11

## REPORT OF LABORATORY ANALYSIS

Page 3 of 18

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc..



## SAMPLE ANALYTE COUNT

Project: XXXXXXXXXX  
Pace Project No.: 4072801

Lab ID	Sample ID	Method	Analysts	Analytes Reported
4072801001	001 DISCHARGE	SM 9222D	DEY	1
		SM 2540C	KMS	1
		SM 2540D	HKV	1
		SM 5210B	DEY	1
		EPA 300.0	JCJ	2
		EPA 300.0	JCJ	2
		EPA 350.1	HMB	1
		EPA 351.2	HMB	1
		EPA 365.4	BAF	1
4072801002	002 CONVEYANCE	SM 9222D	DEY	1
		SM 2540C	KMS	1
		SM 2540D	HKV	1
		SM 5210B	DEY	1
		EPA 300.0	JCJ	2
		EPA 300.0	JCJ	2
		EPA 350.1	HMB	1
		EPA 351.2	HMB	1
		EPA 365.4	BAF	1
4072801003	003 UPSTREAM	SM 9222D	DEY	1
		SM 2540C	KMS	1
		SM 2540D	HKV	1
		SM 5210B	DEY	1
		EPA 300.0	JCJ	2
		EPA 350.1	HMB	1
		EPA 351.2	HMB	1
		EPA 365.4	BAF	1

## REPORT OF LABORATORY ANALYSIS

Page 4 of 18

This report shall not be reproduced, except in full,  
without the written consent of Pace Analytical Services, Inc..



## ANALYTICAL RESULTS

Project: XXXXXXXXXX  
Pace Project No.: 4072801

Sample: 001 DISCHARGE      Lab ID: 4072801001      Collected: 01/11/13 10:02      Received: 01/11/13 11:11      Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>9222D MICRO Fecal Coli by MF</b>									
Analytical Method: SM 9222D Preparation Method: SM 9222D									
Fecal Coliforms	2300000	CFU/100 mL	100000	100000	100000	01/11/13 15:10	01/11/13 15:10		
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C									
Total Dissolved Solids	1610	mg/L	20.0	8.7	1		01/16/13 19:41		
<b>2540D Total Suspended Solids</b>									
Analytical Method: SM 2540D									
Total Suspended Solids	94.0	mg/L	20.0	3.1	1		01/16/13 09:54		
<b>5210B BOD, 5 day</b>									
Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	708	mg/L	600	600	300	01/11/13 14:25	01/16/13 12:05		
<b>300.0 IC Anions</b>									
Analytical Method: EPA 300.0									
Nitrate as N	<4.0	mg/L	8.0	4.0	20		01/11/13 16:39	14797-55-8	D3
Nitrite as N	<2.0	mg/L	4.0	2.0	20		01/11/13 16:39	14797-65-0	D3
<b>300.0 IC Anions, Dissolved</b>									
Analytical Method: EPA 300.0									
Nitrate as N, Dissolved	1.4	mg/L	0.80	0.40	2		01/14/13 17:03	14797-55-8	1q
Nitrite as N, Dissolved	<0.20	mg/L	0.40	0.20	2		01/14/13 17:03	14797-65-0	1q,D3
<b>350.1 Ammonia</b>									
Analytical Method: EPA 350.1									
Nitrogen, Ammonia	149	mg/L	10.0	5.0	20		01/18/13 22:46	7664-41-7	
<b>351.2 Total Kjeldahl Nitrogen</b>									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Nitrogen, Kjeldahl, Total	224	mg/L	40.0	14.0	10	01/16/13 17:27	01/16/13 21:57	7727-37-9	
<b>365.4 Total Phosphorus</b>									
Analytical Method: EPA 365.4 Preparation Method: EPA 365.4									
Phosphorus	20.6	mg/L	1.6	0.35	1	01/15/13 08:40	01/15/13 14:01	7723-14-0	

## ANALYTICAL RESULTS

Project: XXXXXXXXXX  
Pace Project No.: 4072801

Sample: 002 CONVEYANCE Lab ID: 4072801002 Collected: 01/11/13 10:08 Received: 01/11/13 11:11 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>9222D MICRO Fecal Coli by MF</b>									
Analytical Method: SM 9222D Preparation Method: SM 9222D									
Fecal Coliforms	580000	CFU/100 mL	10000	10000	10000	01/11/13 15:10	01/11/13 15:10		
<b>2540C Total Dissolved Solids</b>									
Analytical Method: SM 2540C									
Total Dissolved Solids	1020	mg/L	20.0	8.7	1		01/16/13 19:41		
<b>2540D Total Suspended Solids</b>									
Analytical Method: SM 2540D									
Total Suspended Solids	68.0	mg/L	20.0	3.1	1		01/16/13 09:54		
<b>5210B BOD, 5 day</b>									
Analytical Method: SM 5210B Preparation Method: SM 5210B									
BOD, 5 day	354	mg/L	200	200	100	01/11/13 14:25	01/16/13 12:05		
<b>300.0 IC Anions</b>									
Analytical Method: EPA 300.0									
Nitrate as N	6.0J	mg/L	8.0	4.0	20		01/11/13 16:47	14797-55-8	D3
Nitrite as N	<2.0	mg/L	4.0	2.0	20		01/11/13 16:47	14797-65-0	D3
<b>300.0 IC Anions, Dissolved</b>									
Analytical Method: EPA 300.0									
Nitrate as N, Dissolved	3.9	mg/L	0.40	0.20	1		01/11/13 17:36	14797-55-8	
Nitrite as N, Dissolved	0.35	mg/L	0.20	0.10	1		01/11/13 17:36	14797-65-0	
<b>350.1 Ammonia</b>									
Analytical Method: EPA 350.1									
Nitrogen, Ammonia	53.2	mg/L	10.0	5.0	20		01/18/13 22:47	7664-41-7	
<b>351.2 Total Kjeldahl Nitrogen</b>									
Analytical Method: EPA 351.2 Preparation Method: EPA 351.2									
Nitrogen, Kjeldahl, Total	79.1	mg/L	4.0	1.4	1	01/16/13 17:27	01/16/13 21:46	7727-37-9	
<b>365.4 Total Phosphorus</b>									
Analytical Method: EPA 365.4 Preparation Method: EPA 365.4									
Phosphorus	7.9	mg/L	0.80	0.18	1	01/15/13 08:40	01/15/13 14:02	7723-14-0	



## ANALYTICAL RESULTS

Project: XXXXXXXXXX  
Pace Project No.: 4072801

Sample: 003 UPSTREAM Lab ID: 4072801003 Collected: 01/11/13 10:30 Received: 01/11/13 11:11 Matrix: Water

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
<b>9222D MICRO Fecal Coli by MF</b>	Analytical Method: SM 9222D Preparation Method: SM 9222D								
Fecal Coliforms	8400	CFU/100 mL	100	100	100	01/11/13 15:10	01/11/13 15:10		
<b>2540C Total Dissolved Solids</b>	Analytical Method: SM 2540C								
Total Dissolved Solids	498	mg/L	20.0	8.7	1		01/16/13 19:41		
<b>2540D Total Suspended Solids</b>	Analytical Method: SM 2540D								
Total Suspended Solids	20.2	mg/L	2.0	0.31	1		01/16/13 09:55		
<b>5210B BOD, 5 day</b>	Analytical Method: SM 5210B Preparation Method: SM 5210B								
BOD, 5 day	5.7	mg/L	2.0	2.0	1	01/11/13 14:25	01/16/13 12:05		
<b>300.0 IC Anions</b>	Analytical Method: EPA 300.0								
Nitrate as N	5.8	mg/L	2.0	1.0	5		01/14/13 16:55	14797-55-8	1q
Nitrite as N	0.10J	mg/L	0.20	0.10	1		01/11/13 16:56	14797-65-0	
<b>350.1 Ammonia</b>	Analytical Method: EPA 350.1								
Nitrogen, Ammonia	0.39J	mg/L	0.50	0.25	1		01/18/13 22:48	7664-41-7	
<b>351.2 Total Kjeldahl Nitrogen</b>	Analytical Method: EPA 351.2 Preparation Method: EPA 351.2								
Nitrogen, Kjeldahl, Total	2.3	mg/L	1.0	0.35	1	01/16/13 17:27	01/16/13 21:47	7727-37-9	
<b>365.4 Total Phosphorus</b>	Analytical Method: EPA 365.4 Preparation Method: EPA 365.4								
Phosphorus	0.26J	mg/L	0.40	0.088	1	01/15/13 08:40	01/15/13 14:02	7723-14-0	

## QUALITY CONTROL DATA

Project: [REDACTED]  
Pace Project No.: 4072801

QC Batch:	MBIO/2695	Analysis Method:	SM 9222D
QC Batch Method:	SM 9222D	Analysis Description:	9222D MICRO Fecal Coliform by MF
Associated Lab Samples:	4072801001, 4072801002, 4072801003		

METHOD BLANK: 738028 Matrix: Water

Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Fecal Coliforms	CFU/100 mL	<1	1.0	01/11/13 15:10	

SAMPLE DUPLICATE: 738029

Parameter	Units	4072801001 Result	Dup Result	RPD	Max RPD	Qualifiers
Fecal Coliforms	CFU/100 mL	2300000	1460000			



### QUALITY CONTROL DATA

Project: XXXXXXXXXX  
Pace Project No.: 4072801

QC Batch: WET/13973 Analysis Method: SM 2540C  
QC Batch Method: SM 2540C Analysis Description: 2540C Total Dissolved Solids  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

METHOD BLANK: 738804 Matrix: Water  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	<8.7	20.0	01/16/13 19:37	

LABORATORY CONTROL SAMPLE: 738805

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	590	582	99	80-120	

SAMPLE DUPLICATE: 738806

Parameter	Units	4072914001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	3110	3190	3	10	

### QUALITY CONTROL DATA

Project: [REDACTED]  
Pace Project No.: 4072801

QC Batch: WET/13970 Analysis Method: SM 2540D  
QC Batch Method: SM 2540D Analysis Description: 2540D Total Suspended Solids  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

METHOD BLANK: 738582 Matrix: Water  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Suspended Solids	mg/L	<0.15	1.0	01/16/13 09:53	

LABORATORY CONTROL SAMPLE: 738583

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Suspended Solids	mg/L	100	94.0	94	80-120	

SAMPLE DUPLICATE: 738584

Parameter	Units	4072783010 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	1000	1100	10	10	

SAMPLE DUPLICATE: 738585

Parameter	Units	4072790002 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Suspended Solids	mg/L	2180	2160	1	10	



### QUALITY CONTROL DATA

Project: XXXXXXXXXX  
Pace Project No.: 4072801

QC Batch: WET/13938 Analysis Method: SM 5210B  
QC Batch Method: SM 5210B Analysis Description: 5210B BOD, 5 day  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

METHOD BLANK: 737407 Matrix: Water

Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
BOD, 5 day	mg/L	<2.0	2.0	01/16/13 12:05	

LABORATORY CONTROL SAMPLE & LCSD: 737408

737409

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	198	198	193	100	97	84.6-115	3	20	

SAMPLE DUPLICATE: 737410

Parameter	Units	4072782001 Result	Dup Result	RPD	Max RPD	Qualifiers
BOD, 5 day	mg/L	2490	2450	2	20	

### QUALITY CONTROL DATA

Project: XXXXXXXXXX  
Pace Project No.: 4072801

QC Batch: WETA/15897 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions, Dissolved  
Associated Lab Samples: 4072801001, 4072801002

METHOD BLANK: 737801 Matrix: Water  
Associated Lab Samples: 4072801001, 4072801002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	<0.20	0.40	01/11/13 15:58	
Nitrite as N	mg/L	<0.10	0.20	01/11/13 15:58	

LABORATORY CONTROL SAMPLE & LCSD: 737802

737803

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Nitrate as N	mg/L	2	1.9	1.9	96	97	90-110	1	20	
Nitrite as N	mg/L	1	1.0	1.0	103	104	90-110	1	20	



## QUALITY CONTROL DATA

Project: XXXXXXXXXX  
Pace Project No.: 4072801

QC Batch: WETA/15889 Analysis Method: EPA 300.0  
QC Batch Method: EPA 300.0 Analysis Description: 300.0 IC Anions  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

METHOD BLANK: 737262 Matrix: Water  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	<0.20	0.40	01/11/13 15:58	
Nitrite as N	mg/L	<0.10	0.20	01/11/13 15:58	

LABORATORY CONTROL SAMPLE: 737263

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	2	1.9	96	90-110	
Nitrite as N	mg/L	1	1.0	103	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 737264 737265

Parameter	Units	4072766001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Nitrate as N	mg/L	0.21J	2	2	1.8	1.9	82	84	90-110	2	M0
Nitrite as N	mg/L	<0.10	1	1	1.0	1.0	103	102	90-110	1	

### QUALITY CONTROL DATA

Project: XXXXXXXXXX  
Pace Project No.: 4072801

QC Batch: WETA/15981 Analysis Method: EPA 350.1  
QC Batch Method: EPA 350.1 Analysis Description: 350.1 Ammonia  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

METHOD BLANK: 739485 Matrix: Water  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Ammonia	mg/L	<0.25	0.50	01/18/13 22:38	

LABORATORY CONTROL SAMPLE: 739486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Ammonia	mg/L	10	10.4	104	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 739487 739488

Parameter	Units	4072648001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrogen, Ammonia	mg/L	761	10	10	827	838	663	775	90-110	1	20	P6



### QUALITY CONTROL DATA

Project: XXXXXXXXXX  
Pace Project No.: 4072801

QC Batch: WETA/15928 Analysis Method: EPA 351.2  
QC Batch Method: EPA 351.2 Analysis Description: 351.2 TKN  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

METHOD BLANK: 738445 Matrix: Water  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	<0.35	1.0	01/16/13 21:26	

LABORATORY CONTROL SAMPLE: 738446

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, Kjeldahl, Total	mg/L	5	5.2	105	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 738447 738448

Parameter	Units	10217259001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	345	5	5	365	367	393	440	90-110	1 20	P6

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 738449 738450

Parameter	Units	4072828002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
Nitrogen, Kjeldahl, Total	mg/L	5.4	20	20	24.8	24.9	97	97	90-110	0 20	

### QUALITY CONTROL DATA

Project: XXXXXXXXXX  
Pace Project No.: 4072801

QC Batch: WETA/15905 Analysis Method: EPA 365.4  
QC Batch Method: EPA 365.4 Analysis Description: 365.4 Phosphorus  
Associated Lab Samples: 4072801001, 4072801002, 4072801003

METHOD BLANK: 737901 Matrix: Water

Associated Lab Samples: 4072801001, 4072801002, 4072801003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Phosphorus	mg/L	<0.088	0.40	01/15/13 13:49	

LABORATORY CONTROL SAMPLE: 737902

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Phosphorus	mg/L	5	5.0	99	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 737903 737904

Parameter	Units	4072752002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	1.2	5	5	6.0	6.1	98	98	90-110	0	20	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 737905 737906

Parameter	Units	4072823001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Phosphorus	mg/L	<0.088	5	5	5.1	5.0	102	100	90-110	2	20	



## QUALIFIERS

Project: XXXXXXXXXX  
Pace Project No.: 4072801

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

- |    |  |
|----|--|
| 1q | Re-analysis conducted in excess of EPA method holding time due to presence of high levels of target analytes or other matrix interference. Original analysis was conducted within EPA method holding time. |
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.   |
| M0 | Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.  |
| P6 | Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.  |

### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: [REDACTED]  
Pace Project No.: 4072801

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
4072801001	001 DISCHARGE	SM 9222D	MBIO/2694	SM 9222D	MBIO/2695
4072801002	002 CONVEYANCE	SM 9222D	MBIO/2694	SM 9222D	MBIO/2695
4072801003	003 UPSTREAM	SM 9222D	MBIO/2694	SM 9222D	MBIO/2695
4072801001	001 DISCHARGE	SM 2540C	WET/13973		
4072801002	002 CONVEYANCE	SM 2540C	WET/13973		
4072801003	003 UPSTREAM	SM 2540C	WET/13973		
4072801001	001 DISCHARGE	SM 2540D	WET/13970		
4072801002	002 CONVEYANCE	SM 2540D	WET/13970		
4072801003	003 UPSTREAM	SM 2540D	WET/13970		
4072801001	001 DISCHARGE	SM 5210B	WET/13938	SM 5210B	WET/13971
4072801002	002 CONVEYANCE	SM 5210B	WET/13938	SM 5210B	WET/13971
4072801003	003 UPSTREAM	SM 5210B	WET/13938	SM 5210B	WET/13971
4072801001	001 DISCHARGE	EPA 300.0	WETA/15889		
4072801002	002 CONVEYANCE	EPA 300.0	WETA/15889		
4072801003	003 UPSTREAM	EPA 300.0	WETA/15889		
4072801001	001 DISCHARGE	EPA 300.0	WETA/15897		
4072801002	002 CONVEYANCE	EPA 300.0	WETA/15897		
4072801001	001 DISCHARGE	EPA 350.1	WETA/15981		
4072801002	002 CONVEYANCE	EPA 350.1	WETA/15981		
4072801003	003 UPSTREAM	EPA 350.1	WETA/15981		
4072801001	001 DISCHARGE	EPA 351.2	WETA/15928	EPA 351.2	WETA/15952
4072801002	002 CONVEYANCE	EPA 351.2	WETA/15928	EPA 351.2	WETA/15952
4072801003	003 UPSTREAM	EPA 351.2	WETA/15928	EPA 351.2	WETA/15952
4072801001	001 DISCHARGE	EPA 365.4	WETA/15905	EPA 365.4	WETA/15908
4072801002	002 CONVEYANCE	EPA 365.4	WETA/15905	EPA 365.4	WETA/15908
4072801003	003 UPSTREAM	EPA 365.4	WETA/15905	EPA 365.4	WETA/15908